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SHORT NOTE

Some observations on the behaviour of the critically endangered orange-fronted parakeet (*Cyanoramphus malherbi*) on Maud Island, New Zealand

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The orange-fronted parakeet (*Cyanoramphus malherbi*) is New Zealand's rarest parakeet species with a remnant population size estimated at 200-300 (Grant & Kearvell 2001). In addition to 2 mainland populations found in the South I, the Department of Conservation has established 2 populations on Chalky I and Maud I using individuals bred in captivity at the Isaac Wildlife Trust, Christchurch (Elliot & Suggate 2007, Gaze & Cash 2008). During a study on the breeding biology of this species on Maud I, non-nesting behaviours of 10 banded individuals were recorded. Given the precarious state of the species and the scarcity of published information about the behaviour of translocated captive-bred parakeets, I present here a summary of these observations as a basis for future research.

Between Mar 2007 and Jan 2009, Maud I was visited 18 times at intervals of about every 2 months and each trip lasted 1 or 2 weeks. During each trip 4 observers in 2 pairs, covered the track network of the island between 07:00 and 18:30 hrs in search of nests or potential breeding pairs. We excluded monitoring of the forested patches on the island to minimise disturbance of Maud I frog (*Leiopelma pakeka*) and Takahe (*Porphyrio mantelli*). Occasionally, parakeets were encountered (by aural or visual cues) along or near the tracks. On these occasions, observers took note of the band combination and conducted behavioural bouts (Altmann 1974). Behaviours were classified into 6 predefined categories: sleeping, foraging, resting (sitting quietly, not sleeping), preening, calling, or moving (walking along a branch or through vegetation). The duration of each behaviour was recorded to the nearest minute. Data are presented as means ± SD. Observation bouts lasted an average of 23 ± 19 min (range 3-79 min, n = 16), and a total of 61 behavioural bouts were conducted.

Like orange-fronted parakeets in remnant populations on mainland New Zealand (Kearvell *et al*. 2002), the most commonly observed behaviour was foraging (n = 26; 42.6 % of bouts), with each feeding bout lasting 5 ± 0.2 min (range 1-52 min). Preening and resting bouts were also common and lasted 4 ± 9 min (range 1-32 min, n = 10; 16.5% of bouts) and 2 ± 3 min (range 1-10 min, n = 8; 13.1% of bouts), respectively. Calling lasted 3 ± 5 min (range 1-15 min, n = 7; 11.5% of bouts) and moving bouts 4 ± 5 (range 1-15 min, n = 7; 11.5% of bouts). Sleeping was the most infrequent behaviour observed with each bout lasting 6 ± 6 min (range 1-13 min, n = 3; 4.9% of bouts).

As observations were restricted to the track network, it is possible the frequency and duration of behaviours may not be representative of that occurring in closed forest habitats. The low density of parakeets during the study (62 captive-bred parakeets released to Jan 2009) might also affect the time birds spent in each activity. However, the open nature of the environment allowed close approach

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and a clear view in which to record observations. The vegetation along the tracks consists mostly of low to medium regenerating scrub allowing a broader visual field whilst on the mainland parakeets commonly dwell high in the canopy (Kearvell *et al*. 2002). Although observers attempted to stay about 25-30 m away to prevent stress on the focal individuals, parakeets often moved close to observers and on 2 occasions even landed briefly on the observer. The greater ease of conducting observations on Maud I indicates that this population of the orange-fronted parakeet would be ideal for future detailed quantitative studies.

The release of captive-bred individuals on Chalky I in 2005 (Hirschfeld 2008) and on Maud Is between 2007-2009 has resulted in 2 additional populations of the species. Despite claims that both populations are self-sustaining (Elliot & Suggate 2007, Hirschfeld 2008), there are no updated estimates of the global population size or population growth either on Chalky or Maud Is. Our understanding of the species' biology is largely limited to studies on the mainland (Kearvell 2002, Kearvell *et al*. 2002) and unpublished reports on individuals in captivity. Thus, it is clear that efficient management of the species would benefit from further field studies on translocated populations. The long-term survival of orange-fronted parakeets in managed island environments cannot be guaranteed without additional field studies aimed at monitoring population growth and assessment of arising threats to these new island populations, such as Psittacine Feather and Beak Disease (PBFD), recently detected in wild *Cyanoramphus* in New Zealand (Ortiz-Catedral *et al*. 2009). Improvement of current management of the species on the mainland would also benefit from such studies.

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LITERATURE CITED

Altmann, J. 1974. Observational study of behaviour: sampling methods. *Behavior 49*: 227-267.

Elliot, G.P.; Suggate, R. 2007. *Operation Ark: three year progress report.* Christchurch, Department of Conservation.

Gaze, P.; Cash, B. 2008. *A history of wildlife translocations in the Marlborough Sounds.* Wellington, Department of Conservation.

Grant, A.D.; Kearvell, J. 2001. *Orange-fronted parakeet (Cyanoramphus malherbi) recovery plan, 1999-2005.* Wellington, Department of Conservation.

Hirschfeld, E. 2008. *Rare birds yearbook*. Shrewsbury, MagDig Media Ltd.

Kearvell, J.C. 2002. Nest sites of sympatric orange-fronted (*Cyanoramphus malherbi*) and yellow-crowned parakeets (*C. auriceps*). *Notornis 49*: 261-263.

Kearvell, J.C.; Young, J.R.; Grant A.D. 2002. Comparative ecology of sympatric orange-fronted parakeets (*Cyanoramphus malherbi*) and yellow-crowned parakeets (*C. auriceps*), South Island, New Zealand. *New Zealand Journal of Ecology 26*: 139-148.

Ortiz-Catedral, L.; McInnes, K.; Hauber, M.E.; Brunton, D.H. 2009. First report of Psittacine Beak and Feather Disease (PBFD) in wild red-fronted parakeets (*Cyanoramphus novaezelandiae*) in New Zealand. *Emu 109*: 244-247.

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